

February 18, 1873.

John Gould, Esq., F.R.S., in the Chair.

The Secretary read the following report on the additions to the Society's Menagerie during the month of January 1873 :—

The total number of registered additions to the Society's Menagerie during the month of January 1873 was 168, of which 2 were by birth, 32 by presentation, 62 by purchase, 58 by exchange, and 14 were received on deposit. The total number of departures during the same period by death and removals, was 82.

The most noticeable additions during the month of January were as follows :—

1. A pair of Fruit-Bats (*Pteropus*), presented January 9th by the Rev. Mr. Ritchie, of Takoo, Formosa. The nearest described species appears to be *Pteropus dasymallus* of Temminck, founded on Japanese specimens. But it does not agree quite with the Formosan animals; and I have therefore named them *Pteropus formosus* until there is a possibility of examining them more closely. I am not aware that any *Pteropus* has been previously recorded from Formosa. Mr. Swinhoe does not give any in his lately published list of Formosan Mammals (P. Z. S. 1870, p. 615).

The accompanying drawing (Plate XXII.) by Mr. Keulemans will give a good idea of this animal.

We have now in the Gardens no less than thirteen Fruit-Bats, belonging to the following species :—

	Sex.	Habitat.	Date of arrival.
1. <i>Pteropus medius</i> .....	♀	India.	Presented Oct. 1, 1863.
2. " ".....	♂	"	Purchased Feb. 15, 1872.
3. " <i>poliocephalus</i> ...	♀	Australia.	Presented July 4, 1868.
4. " <i>formosus</i> .....	♂	} Formosa.	Presented Jan. 9, 1873.
5. " ".....	♀		
6. <i>Cynonycteris collaris</i> .....	♂	Natal.	Purchased May 27, 1868.
7. " ".....	♀	"	Purchased Nov. 1, 1869.
8. " ".....	♂	.....	Born in the Gardens, Feb. 27, 1870.
9. " ".....	♀	.....	Born in the Gardens, April 7, 1871.
10. " ".....	♂	Natal.	Received in exchange, Dec. 10, 1871.
11. <i>Cynopterus marginatus</i> ...	...	India.	} Purchased May 4, 1871.
12. " ".....	...	"	
13. " ".....	...	.....	Born in the Gardens, March 6, 1872.

2. A female Tapir, purchased Jan. 16th.

This animal, which was obtained from one of our correspondents of the Royal Mail S.S. Company, was brought down the La Plata from Paraguay. Although I have entered it on the register as *Tapirus terrestris*, it presents several obvious points of distinction from the ordinary Brazilian and Guianan specimens of this animal. The thick short fur, instead of being nearly black in colour, is of a decided rusty brown; the tail is much longer; and the ears are larger and longer. (See figure, p. 194). The occurrence of the Tapir in

Paraguay is well known to us from the writings of Azara and Rengger; but no one seems to have distinguished the Paraguayan animal from



Tapir from Paraguay.

the Brazilian. It will be interesting to see whether the skull and bones present any corresponding points of difference.

3. A female Reddish Macaque (*Macacus rufescens*), purchased January 20th, of Mr. W. Jamrach, and apparently exactly agreeing with the previously received specimen of this Monkey which was noticed and figured in my report for February 1872 (see P. Z. S. 1872, p. 495, pl. xxiv.). Mr. Jamrach informs me that this specimen is believed to have been brought to Calcutta (where he purchased it) from Batavia. But unfortunately this does not bring us much nearer its true *patria*.

4. An African Bat, presented by Mr. W. Jamrach on the same day in a semitorpid condition, appears to be referable to the *Taphozous nudiventer* of Rüppell, Atlas, pl. 27, p. 70.

5. Two Fire-backed Pheasants, received in exchange Jan. 29, belong to the Bornean form *Euplocamus pyronotus*.

Professor Newton, F.R.S., V.P., exhibited an old copper-plate engraving, and remarked as follows:—

“Not long since, Mr. Dresser was so good as to give me the print I now produce representing certain birds. I was at once struck with the strong likeness possessed by the principal figure (named ‘*Auis Indica*’) in it to that given by Leguat, in his ‘*Voyages et Avantures*’

(ii. p. 72), of the bird he calls the 'Géant.' On comparison it was obvious that one figure must have been copied from the other: the only question was, which was the original? This I was soon able to decide. The print bears at bottom the words 'Adr. Collaert fecit' and 'Th. Galle excud.' Now, referring in the British Museum to a copy of Collaert's 'Avium vivæ Icones,' I found my possession to be a detached leaf from that work, which is commonly supposed to have been published at Antwerp about the year 1580; while Leguat's first edition appeared in 1708, he having only seen the bird in 1694. In Nagler's 'Kunst-Lexicon' (iii. p. 45) it is stated that Adrian Collaert was born in 1520, and died in 1567. Th. Galle is said by the same authority (iv. p. 566) to have been born in 1560. The print in the British Museum copy (436. b. 24) differs from my own in that the lettering runs 'Adr. Collaert excud.,' no mention being made of Galle. The full title of the work seems to be 'Avium vivæ icones, in æs incisæ & editæ ab Adriano Collardo,' without date or place of publication; and the Museum copy bears besides the manuscript title 'Octavius Pisani recensuit.' It follows, therefore, that the figure given by Leguat is not original.

"But there is another matter worthy of remark. Collaert's print contains a second and, in some respects, a more satisfactory figure of the same bird, from which its Ralline affinities are made pretty plain. Now it will be recollected that in 1857 Prof. Schlegel contributed to the Academy of Sciences at Amsterdam a paper on the 'Géant' and other extinct birds of the Mascarene Islands\*, of which paper an English translation has appeared†. Herein he declared his opinion that this bird must have been a huge Water-hen, and called it *Gallinula (Leguatica) gigantea*. I need only say that, so far, I quite agree with him; indeed, if he had already seen this second figure of Collaert's, he could not better have interpreted the characters of the ruder drawing.

"I ought to say that the authority of Leguat's print of the 'Solitaire' (*Pezophaps solitaria*), so well known from Strickland's reproduction of it, is not necessarily impaired by the discovery that the portrait of the 'Géant' has been taken from the 'Auis Indica;' and I may also remark that though the proportion observable between this last and two of the other figures (called 'Turma anser,' and obviously of the species now known as *Ædemia perspicillata*) in the print confirms Prof. Schlegel's estimate of the size of the extinct giant, yet too much reliance must not be placed on that fact, since, on examining the rest of Collaert's work, I find that the relative proportion of the figures in his prints is frequently disregarded."

The Secretary read some extracts from a letter addressed to him by Dr. John Kirk, C.M.Z.S., H.M. Consul at Zanzibar. Dr. Kirk stated that he had a living female Koodoo (*Tragelaphus strepsiceros*?) from the Brava coast, which was much smaller than the South-African species, and which he suspected would prove to be different.

\* Verslagen en Mededeelingen der Koninklijke Akademie van Wetenschappen. Afdeling *Natuurkunde*, vii. p. 116.

† Ibis, 1866, p. 146.

He had also obtained during the last three months about forty of the small Antelopes of the island of Zanzibar and of the opposite coast, but had found it difficult to keep them alive, only seven having survived captivity.

As regards the supposed new Guinea-fowl (*Numida granti*), to which Mr. Sclater had called his attention, he promised to endeavour to procure preserved specimens—but, so far as he was acquainted with the bird, did not believe that it was in any way different from the Guinea-fowl which he had procured when on the Zambesi, and of which he had sent specimens to the British Museum.

---

A communication was read from Professor Allman, F.R.S., containing a report on the Hydroids obtained during the two expeditions of H.M.S. 'Porcupine' in 1869 and 1870.

This memoir will be printed in the Society's 'Transactions.'

---

Mr. W. K. Parker, F.Z.S., F.R.S., read a memoir on Ægithognathous Birds, in which he showed that the peculiar palatal structure characteristic of this group is found in three degrees of modification, which might be denominated incomplete, complete, and compound ægithognathism. These stages were described as they were exhibited in a large number of birds (adults and embryos) examined by Mr. Parker.

This memoir will be published in the Society's 'Transactions.'

---

The following papers were read :—

1. Notes on the Anatomy of the Binturong (*Arctictis binturong*). By A. H. GARROD, B.A., F.Z.S., Prosector to the Society.

[Received January 25, 1873.]

Certain points in the anatomy of the soft parts of the Binturong, a knowledge of which is necessary to assist in substantiating the generalizations of Mr. H. N. Turner\* and Prof. Flower† as regards the correct classification of the Carnivora, being as yet undetermined, the recent death of a male specimen enables me to supply them.

Dr. Cantor‡ and Prof. Owen§ have described the alimentary canal, noting some of the most important points; but neither has entered much into detail, and the generative organs in the male are not included in their descriptions.

#### *Alimentary Canal.*

With regard to the *palate*, there are ten transverse ridges extending across its anterior part; they are not very strongly marked. The anterior five form continuous curves, convex forwards, the first being just behind the incisor teeth; the posterior five, starting from the sides forwards and inwards, turn suddenly backwards at right angles to their former direction, and, meeting in the middle line, produce

\* P. Z. S. 1848, p. 63 *et seq.*

† Ibid. 1869, p. 4 *et seq.*

‡ Journal of the Asiatic Society of Bengal, 1846, p. 192.

§ Anatomy of Vertebrates, 1868, vol. iii. p. 445.

V-shaped patterns, with the concavities directed forwards; they are also somewhat further apart than those in front, and have one or two rows of mammillated projections in the spaces thus left. The back part of the palate is not ridged; and the uvula is represented by two slight projections, one on each side of the middle line, with a very shallow notch between them.

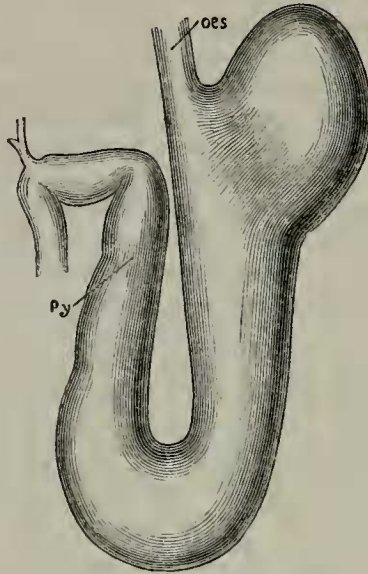
The *tongue* is 3 inches long from the tip to the posterior of the circumvallate papillæ; its sides are nearly straight and parallel, converging slightly in front; at its base the breadth is 1 inch, and in front it decreases to  $\frac{7}{8}$  inch. The mucous membrane covering its lower surface and the floor of the mouth is smooth; and the superior edge of the frenum linguæ is  $1\frac{1}{2}$  inch from the tip, which latter is simply rounded. The mucous membrane of the superior surface, which is thickly set with papillæ, extends up to and slightly over the margins of the tongue in its anterior part, forming a thin-edged fringe all along the border. The anterior half of the superior surface is covered with easily visible, hispid, feline, retroverted papillæ, particularly large at the centre, diminishing in size laterally and forwards, where, at the extreme margin, some fungiformes are mixed up with them. In the back part of the tongue the papillæ fungiformes are sparsely scattered among the diminished filiformes; and the papillæ circumvallatæ, nine in number and not equal in size, form the usual V, four on each side, with one median and posterior. Between these and the epiglottis the mucous membrane is soft and covered sparsely with thin cylindrical papillæ, some of which reach  $\frac{1}{6}$  inch in length; these are most uniform in diameter from end to end near the middle line, and towards the sides they become shorter and broader at their bases, till they blend with and become undistinguishable from the filiformes. No ossified lytta could be found.

The parotid is slightly the largest of the *submaxillary glands*; it is irregularly shaped and thin at its edges, where it is interpolated between the muscles. The submaxillary gland is egg-shaped, and about  $\frac{3}{4}$  inch in average diameter; its duct runs far forwards on the floor of the mouth, opening within  $\frac{1}{8}$  inch of that of the opposite side, upon the symphysis of the jaw and closely bound to it, just behind the canine teeth and half an inch behind the incisors. The sublingual gland is elongate and nearly as large as the submaxillary.

The *stomach* has a very peculiar shape, being elongated longitudinally, and consisting of a longitudinal cylindrical portion running backwards, and, after an abrupt bend, returning chestwards, the parallel tubes thus formed being closely approximate. By this arrangement, notwithstanding the considerable length of the lesser curvature, the cardiac and pyloric orifices are not far from one another; and they would be nearer were it not for the fact that the second or returning portion of the tube is a little shorter than the first. The cardiac portion of this stomach-tube has a diameter in the undistended organ of 1 inch, which gradually reduces to  $\frac{3}{4}$  inch near the pylorus. A globose cardiac *cul-de-sac* throws the œsophageal opening quite to the right of that portion of the organ, and so brings it into contact with the commencing duodenum, which, before its first flexure, is a direct continuation forwards (chestwards) of the second

or pyloric portion of the stomach. The greatest length of the undistended organ, which is from the cardiac *cul-de-sac* to the middle

Fig. 1.



Stomach of the Binturong.

oes, œsophagus; py, pylorus.

of the bend above described, is  $4\frac{3}{4}$  inches, and from the same bend to the pylorus is  $2\frac{3}{4}$  inches; the *cul-de-sac* is  $1\frac{1}{2}$  inch across.

Dr. Cantor says, "The stomach is remarkably lengthened, cylindrical, the parietes much thickened towards pylorus. Œsophagus enters close to fundus ventriculi, in consequence of which there is but a slight difference between the curvatures. Length along the greater curvature 1 foot 2 inches, along the smaller curvature 1 foot 1 inch."

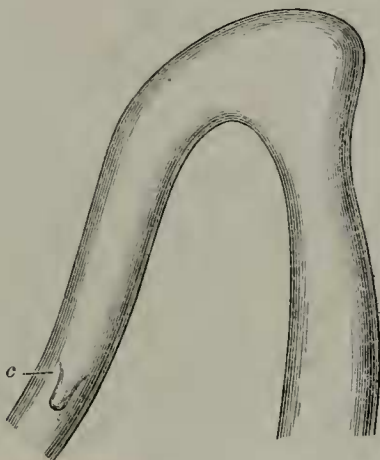
Prof. Owen remarks of the stomach of the Lion that it "lies less transversely to the abdomen than in Man." In a Leopard Cat (*Felis bengalensis*) that I have lately dissected the shape of the stomach was almost exactly the same as that of the Binturong; and it was similarly situated—namely, with its two moieties running longitudinally and not transversely.

The *intestines* are evidently much shorter in the specimen that I dissected than in those described by others, as may be seen from the following Table:—

	Dr. Cantor's Specimen.	Prof. Owen's Specimen.	Present Specimen.
	ft. in.	ft. in.	ft. in.
Small intestine .....	7 11	7 0	4 9
Large intestine .....	1 10	2 0	1 1 $\frac{1}{2}$
Cæcum .....	0 0 $\frac{1}{2}$	0 0 $\frac{1}{2}$	0 0 $\frac{1}{2}$
Length of specimen, without tail...	2 3	2 0	2 3 $\frac{1}{2}$

The bile-duct joins that from the pancreas for  $\frac{1}{4}$  inch before it enters the intestine, which it does  $2\frac{1}{2}$  inches from the pylorus, at the second bend of the duodenum. The intestines are thick, as in the Cats; and there are no permanent folds in any part of the mucous membrane of the alimentary tract. The *cæcum* is situated, as in the *Felidæ* generally, in about the centre of the abdomen, on the inferior surface of the diagonal portion of the intestine, which runs to the left hypochondriac region, and then after, in *Arctictis*, dilating slightly at the angle, goes straight backwards to the rectum. It is

Fig. 2.



Portion of the colon of the Binturong, showing the small *cæcum* (*c*), and the dilatation at the angle of the colon, which is situated in the left hypochondrium.

very much like that in the Herons, being of considerably less diameter than the gut itself; the colon and small intestine are of nearly equal diameter and uniformly cylindrical. The omentum only covered the intestines to a small extent, not going more than half down the abdomen.

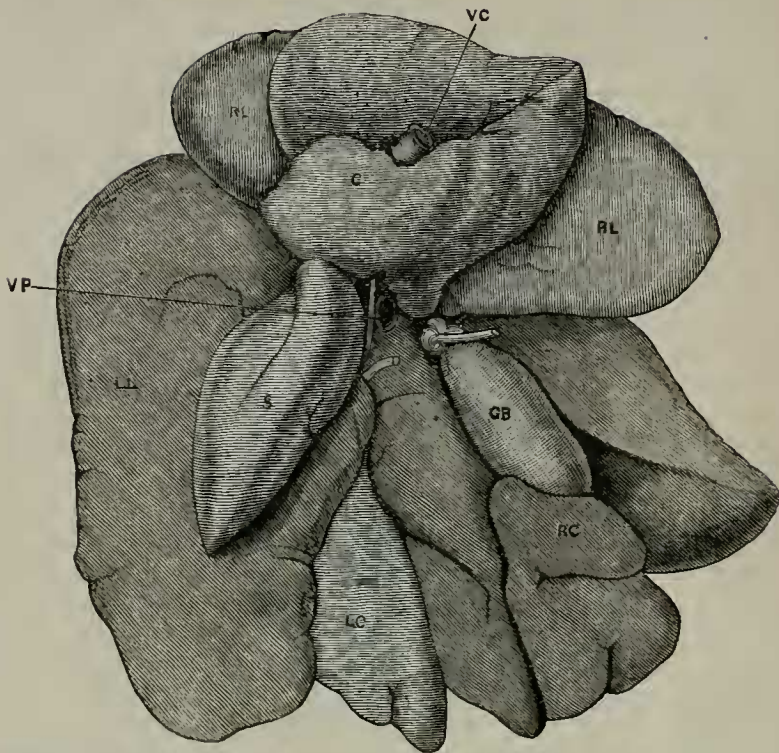
The *liver* presents all the known lobes; and the left lateral, right central, and right lateral are large. The lateral fissures extend deeply into the organ. The right central lobe is considerably cut up; the fissure of the gall-bladder is deep; and a small supplementary lobule covers the fundus of that viscus on its abdominal surface. The left central lobe is much more conspicuous on the diaphragmatic than on the abdominal surface. The caudate lobe is larger than usual, and quadrangular, presenting the renal fossa well developed, and being perforated by the vena cava inferior. The Spigelian lobe is elongate-oval, pointed at its free end, and it does not reach as far as the left margin of the liver. The general contour of the lobes is even, with a few slight irregularities now and then.

The *spleen* is long and thin; it is  $6\frac{1}{4}$  inches long,  $\frac{3}{4}$  inch across, tapering and rounded at the ends.

The *kidneys* are smooth and reniform.

Each lung is divided into distinct lobes, the left into three, and

Fig. 3.



Liver of the Binturong.

The various lobes are lettered as follows:—LL, left lateral; LC, left central; RC, right central; RL, right lateral; S, Spigelian; C, caudate; and GB is the gall-bladder.

In order to facilitate comparison, the direction of the shading in the different lobes is varied, all parts of the same lobe being shaded in the same direction, whilst the lobes on each side are differently shaded; the left lateral, however, so far overlaps the left central as to appear to be connected with the right central.

the right into four, the extra one on the right side (the azygos) being behind and nearly in the middle line.

The *urinary bladder* in this specimen was very much distended, and ascended a considerable way into the abdomen as a narrow pyriform sac.

The *testes* were situated in the scrotum, which projected backwards from the greatly developed mass of perineal glands. Of these last-mentioned glands Dr. Cantor remarks:—"Between the anus and penis is situated a large pyriform gland, exceeding 2 inches in length, partially divided by a deep naked fossa, commencing from the latter organ. The gland secretes a light-brown oily fluid, of a peculiar intense, but not fœtid or sickening odour." The deep cleft above mentioned is longitudinal; and it is over its naked approximated sides that the orifices of the numerous simple, pyriform, yellowish, translucent glands open. Each separate gland is about  $\frac{1}{2}$  or  $\frac{3}{4}$  inch long,



and  $\frac{1}{8}$  inch across at its broadest part, near its base. The two lateral aggregated collections of these glands make up the oval or nearly circular mass in front of the testes; and the raphe of the perineum runs at the bottom of the cleft between them. The penis, in its non-erect condition, does not project more than  $\frac{1}{4}$  inch beyond them.

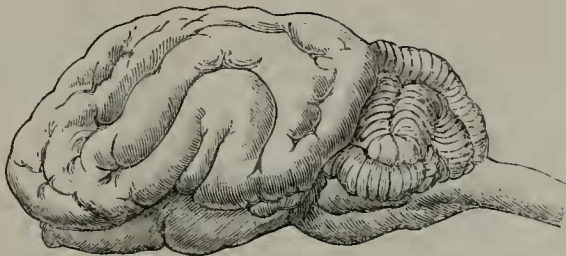
The *prostate* is present, but only forms a small glandular mass round the sides and inferior portion of the urethra. It is situated  $3\frac{1}{2}$  inches from the base of the bladder, being simple,  $\frac{1}{2}$  inch broad, and  $\frac{3}{8}$  inch long. *Cowper's glands* are situated  $1\frac{1}{2}$  inch in front of it; they are oval, and each is  $\frac{3}{16}$  inch broad and  $\frac{1}{2}$  inch long. The testes measure  $1\frac{1}{8}$  inch by  $\frac{9}{16}$  inch. There is no os penis. The glans penis is conical and pointed,  $\frac{3}{4}$  inch long, and presents round its base several small dark brown hard flattened papillæ, about  $\frac{1}{12}$  inch long.

The vesiculæ seminales are absent.

The anal glands are simple, globose, and thin-walled, about  $\frac{1}{2}$  inch in diameter; their orifices, one on each side, are extremely small.

The brain presents the feline characters so clearly pointed out by Prof. Flower\*; and, as in *Felis*, it differs from that of *Viverra* in having the posterior and not the anterior of the limbs of the internal circumsylvian gyrus of greater breadth.

Fig. 4.



Brain of the Binturong.

The Sylvian fissure tends to be vertical, but is directed somewhat backwards as well as upwards. It is surrounded by three gyri. The inner commences behind, near the lower border of the temporal lobe, and, after ascending as high as the top of the fissure, bends round it and descends on the frontal lobe to the supraorbital fissure, when it again doubles forwards to form the commencement of the middle gyrus. Its posterior limb is twice the breadth of the anterior, and is bisected by a vertical fissure which extends down as far as the horizontal temporal fissure. The middle gyrus is of uniform breadth throughout, and, commencing at the folding of the inner gyrus on the frontal lobe, goes round it and terminates at the lower border of the temporal lobe behind; there is no fold in it at its posterior superior angle. The third or outer gyrus is but slightly bent in its anterior limb, which commences at the supraorbital

\* Proc. Zool. Soc. 1869, p. 478.

fissure; it embraces the middle gyrus, and does not cease opposite its posterior superior angle, but descends about halfway down its posterior limb to end by a point.

The whole brain narrows in front; and the crucial sulcus is not at all strongly marked. The corpora albicantia are separated behind; and the optic nerves in front of the chiasma run forwards close together. The pituitary body is of fair size.

2. On the Cause of Death of a Black-faced Kangaroo (*Macropus melanops*). By A. H. GARROD, B.A., F.Z.S.,  
Prosector to the Society.

[Received February 18, 1873.]

The cold weather of the first week of this month coming on rather suddenly, seems to have been the cause of the death of three animals in the Gardens, in all of which, on post mortem examination, it was found that the lesion was the result of excessive and abnormal movement in the abdominal viscera. A Paradoxure died from intussusception of the small intestine, part going through the ilio-cæcal valve into the colon; an Emu from prolapse of a considerable length of the alimentary canal; and the above-named Kangaroo from strangulation of a loop of small intestine by the tight twisting round it of the cæcum—a most uncommon lesion, which proves that the possession of that appendage has its disadvantages as far as the individual is concerned—just as in several human subjects death has been proved to have occurred from impaction of small bodies, like cherry-stones, in the appendix vermiformis.

In the Kangaroo under consideration, on opening the abdomen the attention was immediately drawn to a large loop of strangulated small intestine, quite black from congestion, and partly covered with flakes of recent lymph, the result of the induced peritonitis, which was inconsiderable. The length of gut involved was nearly two yards after it had been detached from the mesentery; but in the body of the animal it appeared considerably shorter, from being convoluted in the ordinary manner. The last foot or so of the small intestine was not included in the diseased loop, which consisted of the portion immediately preceding it. The cæcum was about a foot and a half long, and was situate in the right iliac region, from which it extended to the left superficially, and then again to the right behind the loop of intestine which it encircled, so that the caput cæci could be seen, distended with grumous matter (as was the strangulated portion), to the right. With care, while the viscera were *in situ*, the little finger could be introduced into the ring thus artificially formed; and it was evident that the constriction was mostly produced by the mesenteric band which attaches the proximal portion of the cæcum to the small intestine. There were no adhesions of importance. The viscera were removed *en masse*; and afterwards, without the least difficulty, the cæcum was uncoiled, and the intestine was then left quite per-

vious. The mesenteric border of the cæcum was nearly as black as the strangulated part; but it was more normal in colour elsewhere. The alimentary canal was not at all over-distended with food; and the colon was nearly empty.

Till the attack came on which caused its death, the animal was in excellent health. It was ill only forty hours. At first it lay out straight on its back for some hours; but during the last day of its life it was much doubled up, with its head between its legs.

### 3. Notes on Mr. E. W. H. Holdsworth's Catalogue of Ceylon Birds. By E. L. LAYARD, F.Z.S.

[Received January 29, 1873.]

Through the kindness of my friend Mr. E. W. H. Holdsworth, I have just received a copy of his "Catalogue of Ceylon Birds" P. Z. S. 1872, p. 404 *et seq.*); and I wish to make a few observations thereon which strike me on the perusal of his remarks.

Mr. Holdsworth has added twenty-five species to the Ceylon list which I did not meet with, but has failed to find several which occurred to me. This is precisely what happened to me at the Cape, following M. Verreaux's footsteps, and should teach us to be very careful in imputing inaccuracy to a brother naturalist. I commenced collecting in Ceylon in 1846, twenty-six years ago; what changes have taken place since then! It appears to me that (as I found it at the Cape) some species, for reasons unknown to us, have altered their line of travel or migration and left the country; while others, perhaps influenced by the same causes, have deflected their line of route and come in. This is especially marked among the Waders and Water-fowl; for instance, *Gallinago gallinula*. The late Mr. Vassil Burleigh, my "sportsman's authority," was a well-known collector and sportsman in the northern province, and one of the best snipe-shots of my day. He knew the bird well, and regretted its sudden disappearance from his shooting-grounds.

*Limosa algocephala*, *Totanus fuscus*, and *T. calidris*. The first of these was scarce, the two others common in my time. What has caused them to disappear, and the Heron (*Ardea cinerea*) to become common? Surely I could not have overlooked *A. cinerea*, a bird I have known since childhood! and then in my keen search for eggs, in which I visited some of the most noted breeding-places for the Ardeidæ, I could not have passed over my old friend had it been nesting with others. As to the identity and existence of *Branta rufina*, I am as sure of it as one can be of any thing in this world. How I did strive to circumvent those I saw between Jaffna and Chavagacherry; when I found I could not approach them with my shot gun, I actually had my little American rifle-barrel restocked, hoping to get a shot at them. I certainly never handled a Ceylon specimen; but I knew the Duck well, and had specimens then in my collection received from Mr. Blyth.

## 13. SPILORNIS BACHA.

Mr. Blyth, who identified my specimen, always had doubts as to our Ceylon species differing from the Indian *S. bacha*.

## 46. CAPRIMULGUS ATRIPENNIS, Jerdon.

The identification of this species with my *C. mahrattensis* is doubtless correct.

## 61. TOCKUS GRISEUS.

I suspect this must be the species observed by me, but not procured.

## 65. PALÆORNIS CALTHROPÆ.

I have to thank Mr. Holdsworth for restoring the true reading of this name.

## 70. CHRYSOCOLAPTES STRICKLANDI.

Mr. Holdsworth and I differ in the colour of the irides. I can only say I noted them on skinning the specimens, which was my usual practice. I think, however, that it is not a good plan. I have observed, since I have been here chiefly, that the colour of some irides change with decomposition, usually becoming darker. The safest plan for the collecting naturalist is to have a number of labels with him in the woods, and to note colours at once. Sex and age also I am inclined to think affect their colour.

## 74. BRACHYPTERNUS CEYLONUS.

I have already stated elsewhere that Dr. Kelaart's identifications were not to be depended on.

## 76. MEGALAIMA FLAVIFRONS.

This bird never, in my day, came near Colombo. Its peculiar call would at once have betrayed it; and it was a bird I never omitted to get if I could, being peculiar to the island. It must now be spreading outwards from the mountain-zone.

## 103. LANIUS CRISTATUS.

I can supply the hiatus here. I was at Hambantotte and the south-east coast in April and May.

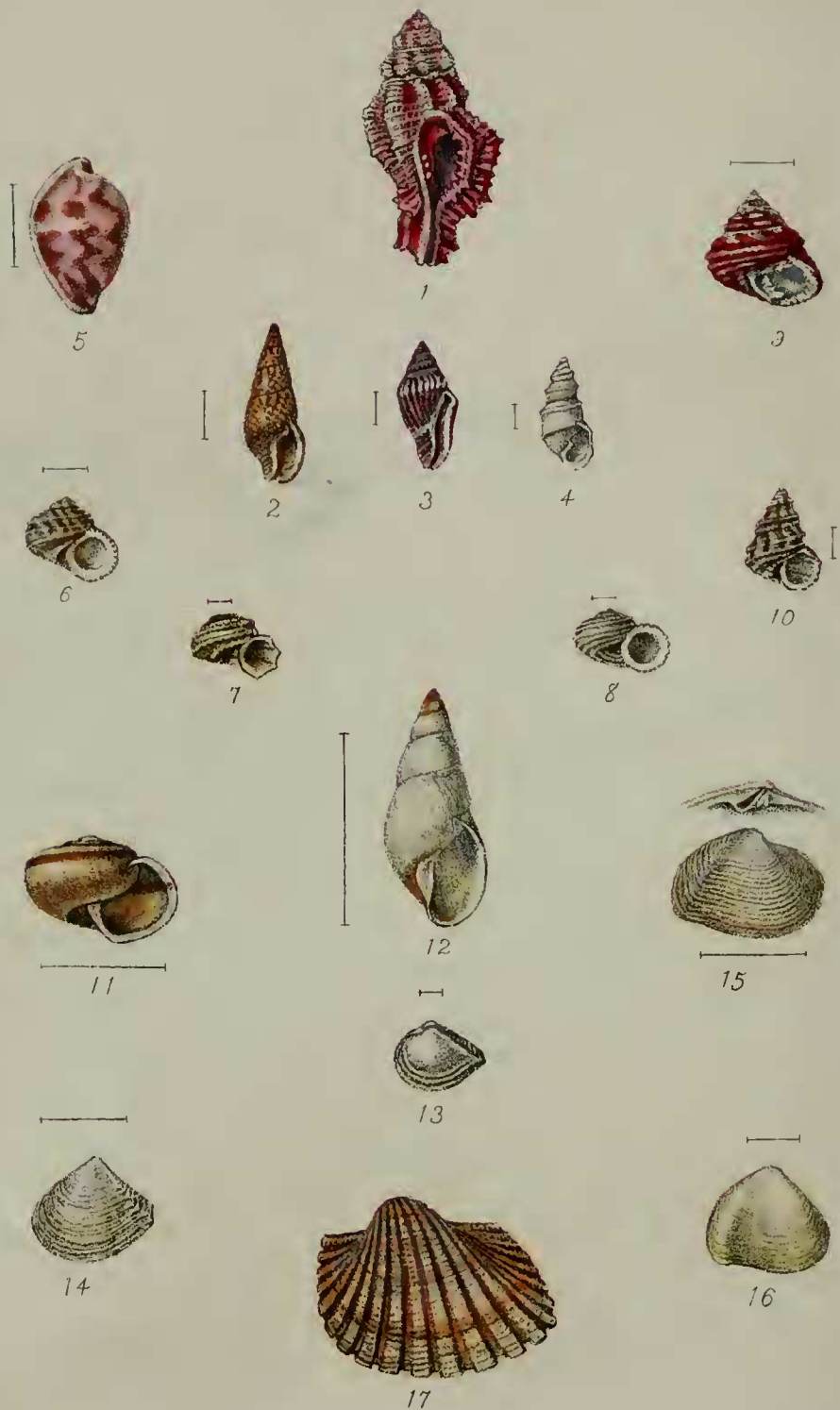
## 111. BUCHANGA LONGICAUDATA.

If *B. minor* is not in my list of Ceylon birds (I have not access to my books, which are nearly all packed to avoid the damp of this destructive climate), there has probably been a wrong identification here. The bird to which I allude is extremely common in the Jaffna peninsula.

## 122. ALSEONAX TERRICOLOR, Hodgson.

Lord Walden showed me a specimen of my *Butalis muttui*,





and, if my memory serves me rightly, admitted the distinctness of the species.

123. *OCHROMELA NIGRORUFA*, Jerd.

Mr. Mitford's sketches of the birds that fell under his notice were too life-like to be mistaken. I think, however, I actually shot the specimen from which Mr. Mitford made his sketch. I have always included *Ratnapoora* in the mountain zone.

181. *ZOSTEROPS CEYLONENSIS*.

I do not think I ever had a specimen of the hill *Zosterops* in my possession; and, as before stated, I doubted Dr. Kelaart's identification. I have collected at Newera Ellia.

195. *MUNIA RUBRONIGRA*

may have been introduced; but, if I remember right, I found large flocks of them.

206. *SPATULA CLYPEATA*

I found breeding between Jaffna and Chavagacherry, and caught some of the young ones.

In conclusion, I must congratulate Mr. Holdsworth in his adding so many new species to the Ceylon fauna; and I hope he and I may live for another quarter of a century to welcome the labours of another fellow worker and see the changes that he may show by his discoveries. But whether *we* do or do not, those who follow us will have the use of our experience.

4. Descriptions of seventeen new Species of Land and Marine Shells. By HENRY ADAMS, F.L.S.

[Received January 30, 1873.]

(Plate XXIII.)

*CORALLIOPHILA BARCLAYANA*, sp. nov. (Plate XXIII. fig. 1.)

*C. testa fusiformi, plicis numerosis obtusis munita, liris transversis et lamellis muricatis longitudinalibus clathrata, antice violacea, postice albida; spira acuto-conica; anfr. 6-7, convexis, ultimo dimidiam long. testæ superante, in canalem angustam producto; apertura  $\frac{1}{3}$  long. testæ, subovali; labro arcuato, variciformi, late fimbriato, crenulato, intus denticulato; columella antice granulata; fauce purpurascens.*

Long. 29, diam. 13 mill.

*Hab.* Mauritius (*coll. H. Ad.*).

*MITRELLA DÆDALA*, sp. nov. (Plate XXIII. fig. 2.)

*M. testa elongata, solidula, pallide lutea, maculis rufis ad suturam*

*ornata, infra fulvo exigue reticulata; apice castaneo; anfr. 6, convexiusculis, ultimo antice striato; apertura satis ampla; columella lævi, callo tenui induta; canali brevi, lata; labro postice sinuato, incrassato.*

Long. 5, diam. 2 mill.

*Hab.* New Hebrides (*coll. Hargraves*).

ZAFRA PURPUREA, sp. nov. (Plate XXIII. fig. 3.)

*Z. testa fusiformi, solida, longitudinaliter numerose plicata, serie granulorum ad suturam cincta, antice transverse striata, cæruleo-alba, fascia alba infra suturam et strigis purpureis ornata; anfr. 6½, vix convexis, ultimo attenuato; apertura lineari, flexuosa, canali subrecurva; columella callo restricto induta; labro sinuoso, incrassato.*

Long. 4½, diam. 2 mill.

*Hab.* New Hebrides (*coll. Hargraves*).

ODOSTOMIA CARINATA, sp. nov. (Plate XXIII. fig. 4.)

*O. testa imperforata, elongato-ovoidea, tenui, lævi, albida; spira turrata, sutura marginata; anfr. 6, planatis, postice tabulatis et carinatis, ultimo ad peripheriam cingula parva instructo, basi rotundato; apertura subovali, antice vix producta; plica columellari conspicua, obtusa, transversa.*

Long. 3, diam. 1¼ mill.

*Hab.* Persian Gulf (*coll. M'Andrew*).

AMHIPERAS PULCHELLUS, sp. nov. (Plate XXIII. fig. 5.)

*A. testa ovato-globosa, solidula, longitudinaliter leviter striatula, dorso liris capillaceis distantibus transversis et ad extremitates striis profundis transversis sculpta, pallide carnea, rubro variegata; apertura lineari; labio antice excavato et plica dentiformi munito; labro varicoso, sulcato, canali anteriore angusta et canali posteriore obliqua, callo circumdata, instructo.*

Long. 10, diam. 6 mill.

*Hab.* Mauritius (*coll. Barclay*).

COLLONIA MUNDA, sp. nov. (Plate XXIII. fig. 6.)

*C. testa depresso turbinata, solida, anguste umbilicata, liris numerosis, ad peripheriam majoribus, cincta, longitudinaliter conferte striata, albida, strigis et maculis pallide fulvis ornata; anfr. 4, convexis, supra angulatis, ultimo basi vix convexo; umbilico funiculo crenulato ambiente; apertura circulari; perist. varicoso, valde crenulato.*

Diam. 4, alt. 4 mill.

*Hab.* Persian Gulf (*coll. M'Andrew*).

LIOTIA BELLULA, sp. nov. (Plate XXIII. fig. 7.)

*L. testa depresso, late umbilicata, solidula, albida, cingulis et striis distantibus cancellata; spira vix elevata, sutura crenulata; anfr.*



$3\frac{1}{2}$ , cito crescentibus, bene discretis, supra tabulatis, ultimo ad peripheriam et ad basin carinis crenulatis instructo, antice sub-soluto; umbilico amplo, profundo, scalariformi, costa crenulata marginali et altera interiore cincto; apertura circulari; perist. obtuso.

Diam. maj.  $2\frac{1}{2}$ , min. 2, alt.  $1\frac{1}{2}$  mill.

Hab. Persian Gulf (coll. M<sup>r</sup> Andrew).

CYCLOSTREMA CARINATUM, sp. nov. (Plate XXIII. fig. 8.)

C. testa depresso-globosa, solida, umbilicata, carinis angulatis regularibus et striis radiantibus sculpta; anfr. 4, convexis, rapide accrescentibus, ultimo antice dilatato; apertura subcirculari; perist. crasso, subinterrupto.

Diam. maj.  $2\frac{1}{2}$ , min. 2, alt.  $1\frac{1}{2}$  mill.

Hab. Persian Gulf (coll. M<sup>r</sup> Andrew).

CLANCULUS PUSILLUS, sp. nov. (Plate XXIII. fig. 9.)

C. testa trochiformi, solida, liris granosis, alternis minutis, cincta, interstitiis conferte oblique striata, rosea, maculis albis notata; sutura canaliculata; anfr. 6, convexis, ultimo basi convexo, liris granosis concentricis instructo; umbilico crenulato, albo; apertura diagonali, subcirculari, dente columellari prominente, compresso; labro simplici, intus sulcato.

Diam. 7, alt. 5 mill.

Hab. New Hebrides (coll. Hargraves).

MINOLIA VARIABILIS, sp. nov. (Plate XXIII. fig. 10.)

M. testa umbilicata, elevato-conica, tenui, liris concentricis et lamellis tenuibus numerosis clathrata, carinis binis nodosis ad peripheriam cincta, straminea, plerumque maculis rufis vel strigis olivaceo-fulvis ornata; spira elevata, sutura subcanaliculata; anfr. 6, convexis; umbilico mediocri, profundo, costa obtusa marginali instructo; apertura circulari; perist. subcontinuo, acuto, recto.

Long. 4, diam. 3 mill.

Hab. Persian Gulf (coll. M<sup>r</sup> Andrew).

HELIX (FRUTICICOLA) EVERETTI, sp. nov. (Plate XXIII. fig. 11.)

II. testa umbilicata, depresso-globosa, solidiuscula, sub lente granulata, superne leviter plicato-striata, pallide fulva, fascia fusca ad peripheriam ornata, epidermide fulvida tenui induta; spira paululum elevata, sutura valde impressa; anfr. 4, convexis, ultimo ad basin circa umbilicum obtuse angulato; apertura parum obliqua, sublunari; peristomio expanso et anguste reflexo, marginibus conniventibus, columellari declivi, superne dilatato, patente.

Diam. maj. 13, min.  $11\frac{1}{2}$ , alt. 10 mill.

Hab. Busan, near Sarawak, Borneo (coll. II. Ad.).